ABSTRACT:

In this paper, we report the characteristic of heat transfer and fluid flow behavior in a cavity with differentially heated side walls. Dirichlet type of boundary conditions was considered for the bottom and top walls, which is perfectly conducting boundary conditions. Three numerical experiments were preformed in order to study these phenomena at different Rayleigh numbers. In current study, the governing Navier-Stokes equations were solved directly by using finite different formulation and indirectly by using lattice Boltzmann method. The results for this problem were compared well between these two approaches. Good agreement also found when the computed results were compared with those published in literature.